

ABSTRACT

Error protection is provided for associative memory entries and lookup operations performed thereon. Protected associative memory entries are determined which include one or more protection bits. These protected entries are programmed into an associative memory, typically with each protected entry being programmed into two or more consecutive locations. Corresponding protected lookup words are generated and used to perform lookup operations in the associative memory. For binary content-addressable memories (CAMs) and ternary content-addressable memory (TCAMs), one or more error detection bits are used per entry to prevent or at least reduce the possibility of a lookup error. For example, a single parity bit or multiple error-correction code (ECC) bits may be used per entry. The use of the protection bits reduces the possibility of a false matching of a corrupted entry, and the duplicate entries reduce the possibility of not matching an entry that should be matched as all copies of the entry must be corrupt in order to not match one of the entries during a lookup operation.